HAWAIʻI
SEAFLOOR TO SUMMIT

Cartography by: Alex Hordal, 2026

Kilometres
0 10 20 30 40 50

Elevation in metres

Projection: Hawaii Albers Equal Area Conic

ENGAGEMENT ❤

In 2011, my wife and I got engaged on Kalalau Beach—a stunning stretch of sand beneath towering pali (sea cliffs) at the end of the infamous 17 km Kalalau Trail on Kaua'i's Nā Pali Coast.

TUSCALOOSA SEAMOUNT

The largest block within the Nu'uanu Slide is ~29 km across and rises ~1,600 m above the surrounding seafloor.

LANDSLIDES & EROSION

Seventeen distinct submarine landslides surround the Hawaiian Islands. The Nu'uanu Slide—one of the largest of these deposits—represents the catastrophic collapse of the northeastern flank of the dormant shield volcano Koʻolau on Oʻahu, dispersing thousands of cubic kilometres of debris more than 200 km across the ocean floor (USGS, n.d.).

LEGEND

Elevation
3,959 m / 13,803 ft
0 m MSL
−6,100 m / −20,013 ft

- Populated Place
- Seamount
- Island or Atoll
- Bank, Shoal, or Reef
- Area of Interest
- Active Volcano
- Major Road
- Urban Area
- Historical Lava Flow

DATA

Topobathymetric

Hawai'i Mapping Research Group (HMRG). (n.d.). *Multibeam bathymetry data for Hawai'i*. School of Ocean and Earth Science and Technology (SOEST), University of Hawai'i at Mānoa. https://www.soest.hawaii.edu/HMRG/multibeam/

National Centers for Environmental Information (NCEI). (2022). *Bathymetric datasets including Coastal Relief Model (CRM) and ETOPO 2022 global relief model: National Oceanic and Atmospheric Administration*. https://www.ncei.noaa.gov/maps/bathymetry/

The topobathymetric surface used in this map was derived from a mosaic of multiple DEM sources, including the NOAA NCEI Coastal Relief Model (CRM) (~30 m) and ETOPO2022 (~450 m), as well as multibeam bathymetry from SOEST's Hawai'i Mapping Research Group (~50 m). The CRM provides nearshore coverage, ETOPO2022 provides global bathymetry, and the multibeam data contribute higher-resolution detail where available. Due to differences in spatial resolution and coverage, all datasets were resampled to a common 90-m grid to balance detail, continuity, and visual consistency across the surface. Source datasets reference differing vertical datums, resulting in minor elevation offsets; however, these differences are negligible at the 90 m resolution used in this map and do not affect overall terrain representation.

Vector & Thematic Layers

Bureau of Transportation Statistics (BTS). (n.d.). *North American roads dataset*. https://geodata.bts.gov/

National Oceanic and Atmospheric Administration (NOAA). (n.d.). *Marine place names*. data.gov. https://catalog.data.gov/dataset/marine-place-names

Natural Earth. (n.d.). *World geographic lines*. https://www.naturalearthdata.com/downloads/

State of Hawai'i. (n.d.). *Hawai'i geospatial data layers (Island Coastlines, Ocean Risk, Streams, Marine Place Names, Reserves, Urban Areas, Geographic Names, and Geological Units)*. Hawai'i Statewide GIS Program. https://geoportal.hawaii.gov/

U.S. Department of Agriculture (USDA). (n.d.). Tree canopy cover data. Forest Service Geospatial Data Gateway. https://data.fs.usda.gov/geodata/rastergateway/

Background Information

Royal Collection Trust. (n.d.). *A voyage to the Pacific Ocean ... v. 3 / by James King (1785)*. https://www.rct.uk/collection/1251881/a-voyage-to-the-pacific-ocean-v-3-by-james-king

U.S. Geological Survey. (2016, January 14). *Volcano Watch—A geologic tour of the Hawaiian Islands: Oʻahu*. https://www.usgs.gov/news/volcano-watch-geologic-tour-hawaiian-islands-oahu

U.S. Geological Survey. (n.d.). Where is the largest active volcano in the world? https://www.usgs.gov/faqs/where-largest-active-volcano-world

This map is produced as a portion of the requirements of the GIS: Cartography and Geovisualization program of the Centre of Geographic Sciences, NSCC, Lawrencetown, Nova Scotia. The product is unedited, unverified and intended for educational purposes only.

Depths and distances are approximate.

Centre of Geographic Sciences
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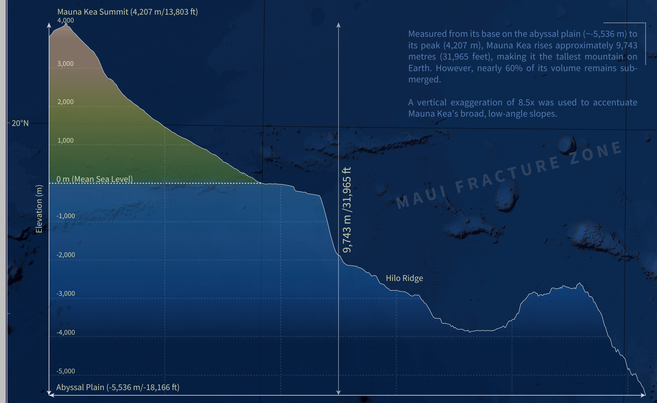
MAUNA KEA ELEVATION PROFILE
(Vertical exaggeration: 8.5x)



Measured from its base on the abyssal plain (~-5,536 m) to its peak (4,207 m), Mauna Kea rises approximately 9,743 metres (31,965 feet), making it the tallest mountain on Earth. However, nearly 60% of its volume remains submerged.

A vertical exaggeration of 8.5x was used to accentuate Mauna Kea's broad, low-angle slopes.

HAWAIIAN ARCHIPELAGO

KAUA'I DEEP
MAUI DEEP
HAWAIIAN DEEP
O'AHU DEEP
LĀNA'I DEEP
KAHO'OLAWE DEEP
Pacific Ocean
HAWAIIAN ARCHIPELAGO
NU'UANU SLIDE
WAILU SLIDE
KA'ENA SLUMP
KA'ENA RIDGE
Ka'ie'ie Waho Channel
Kaulakahi Channel
South Kaua'i Slide
Ka'iwi Channel
PENGUIN BANK
MOLOKA'I FRACTURE ZONE
MAUI FRACTURE ZONE
SOUTHWEST O'AHU VOLCANIC FIELD
CLARKE 1 SLIDE
KAHO'OLAWE TROUGH
Alenuihāhā Channel
PA'UWELA RIDGE
HĀNA RIDGE
KOHALA RIDGE
KAUIAHAEHOE SLUMP
HILO RIDGE
PUNA RIDGE
PUNA CANYON
KOHATA CANYON
KIHOLO RIDGE
NORTH KONA SLUMP
KONA COAST
KAILUA SLUMP
SOUTH KONA SLUMP
SOUTH KONA SLIDE
KA'LAE RIDGE
Tuscaloosa Seamount
29 km
1,600 m
Dutton Seamount
Clark Seamount
Mahukona Volcano
Indianapolis Seamount
Powers Seamount
Perret Seamount
Jaggar Seamount
Ellis Seamount
Washington Seamount
Cross Seamount
Palmer Seamount
Day Seamount
McCall Seamount
Dana Seamount
Pu'uauau Seamount
Hohonu Seamount
Swordfish Seamount
Pensacola Seamount
Kaua'i
Ni'ihau
Ka'ula Rock (Sanctuary)
Kalalau Beach
Nā Pali Coast
Kalalau Trail
Hanalei
Kīlauea
Princeville
Kōke'e
Waimea Canyon
KAUA'I
1,591
KAWAIKINI
Waimea
Hā'upu
958
Hālaepōpō
Kōloa
Poʻipū
Waiʻoli
Hanalei
Waiʻoli Beach Park
Kīlauea Point
Kīlauea Point National Wildlife Refuge
Kalihiwai
Princeville
Hanalei Bay
Waimea Canyon
Kōke'e
Waimea
Kekaha
Kaumakani
Hā'upu
Hālaepōpō
Kōloa
Poʻipū
Waiʻoli
Kīlauea
Kalihiwai
Princeville
Hanalei
Hanalei Bay
Waiʻoli Beach Park
Kīlauea Point
Kīlauea Point National Wildlife Refuge